

## CLAIMS

1. A method for selecting an *Escherichia coli* strain which highly expresses an exogenous gene, comprising selection using the intensity  
5 of stress response as an index.
2. The selection method according to claim 1, wherein the stress response is hydrogen peroxide decomposition activity.
- 10 3. The selection method according to claim 1 or 2, wherein the strain to be selected is one where an exogenous gene whose expression tends to decrease by causes other than loss or mutation of a plasmid when introduced into an *Escherichia coli* is highly expressed.
- 15 4. An *Escherichia coli* strain which highly expresses an exogenous gene, the strain being selected using the intensity of stress response as an index.
5. The *Escherichia coli* strain which highly expresses an exogenous  
20 gene according to claim 4, wherein the stress response is hydrogen peroxide decomposition activity.
6. The *Escherichia coli* strain which highly expresses an exogenous gene according to claim 4 or 5, wherein an exogenous gene whose  
25 expression tends to decrease by causes other than loss or mutation of a plasmid when introduced into an *Escherichia coli* is highly expressed.
7. The *Escherichia coli* strain which highly expresses an exogenous

gene according to any one of claims 4 to 6, wherein the initial amount of gene expression is maintained or enhanced during subculture when a gene, whose expression amount in other *Escherichia coli* strains is reduced to half the initial expression amount during 30 subculture generations, is expressed in the strain.

8. The *Escherichia coli* strain which highly expresses an exogenous gene according to claim 6 or 7, wherein the exogenous gene whose expression decreases by causes other than loss or mutation of a plasmid is a gene of an ammonia lyase.

9. The *Escherichia coli* strain which highly expresses an exogenous gene according to claim 8, wherein the expression gene of an ammonia lyase is a gene of phenylalanine ammonia lyase.

~~10. The *Escherichia coli* strain which highly expresses an exogenous gene according to claim 9, wherein the gene of phenylalanine ammonia lyase is derived from a plant.~~

11. The *Escherichia coli* strain which highly expresses an exogenous gene according to claim 10, wherein the plant is *Lithospermum erythrorhizon*.

12. The *Escherichia coli* strain which highly expresses an exogenous gene according to any of claims 4 to 11, wherein the *Escherichia coli* strain is derived from K12 strain.

13. The *Escherichia coli* strain which highly expresses an exogenous gene according to claim 12, wherein the *Escherichia coli* strain is

derived from XL1-Blue strain.

14. The *Escherichia coli* strain which highly expresses an exogenous gene according to claim 13, wherein the *Escherichia coli* strain is  
5 *Escherichia coli* SD840 strain.

15. The *Escherichia coli* strain which highly expresses an exogenous gene according to claim 14, wherein the *Escherichia coli* strain is a derivative strain obtained from *Escherichia coli* SD840 strain by  
10 clone selection or gene manipulation.

16. *Escherichia coli* SD840 strain (Deposit No. FERM BP-08546).

17. A process for producing an enzyme, comprising expressing the  
15 exogenous gene of the *Escherichia coli* strain which highly expresses the exogenous gene according to any one of claims 4 to 15.

18. A process for producing a compound, comprising reacting a treating solution containing the *Escherichia coli* strain which highly  
20 expresses the exogenous gene according to any one of claims 4 to 15 or an enzyme thereby produced with a substrate of the enzyme.

19. The process for producing a compound according to claim 18, wherein the enzyme is an ammonia lyase, the substrate is an unsaturated  
25 carboxylic acid, and the resulting compound is an L-amino acid and/or its derivatives.